

What is claimed is:

1. A glass composition comprising:

not smaller than 65wt.% and smaller than 74wt.%  $\text{SiO}_2$ ;

0-5 wt.%  $\text{B}_2\text{O}_3$ ;

0.1-2.5 wt.%  $\text{Al}_2\text{O}_3$ ;

not smaller than 0 wt.% and smaller than 2 wt.%  $\text{MgO}$ ;

5-15 wt.%  $\text{CaO}$ ;

0-10 wt.%  $\text{SrO}$ ;

0-10 wt.%  $\text{BaO}$  wherein a total amount of  $\text{MgO}$ ,  $\text{CaO}$ ,  $\text{SrO}$ , and  $\text{BaO}$  is greater than 10 wt. % and not greater than 15 wt.%;

0-5 wt.%  $\text{Li}_2\text{O}$ ;

10-18 wt.%  $\text{Na}_2\text{O}$ ;

0-5 wt.%  $\text{K}_2\text{O}$  wherein a total amount of  $\text{Li}_2\text{O}$ ,  $\text{Na}_2\text{O}$  and  $\text{K}_2\text{O}$  is 10-20 wt.%; and

0-0.40 wt.%  $\text{TiO}_2$ .

2. A glass composition as claimed in claim 1, wherein the glass composition comprises:

65-70 wt.%  $\text{SiO}_2$ ;

not smaller than 0 wt.% and smaller than 2 wt.%  $\text{B}_2\text{O}_3$ , and

$\text{MgO}$ ,  $\text{CaO}$ ,  $\text{SrO}$  and  $\text{BaO}$  in a total amount of not smaller than 10 wt.% and smaller than 12 wt.%.

3. A glass composition as claimed in claim 1 or 2, wherein a total ion oxide ( $\text{T-Fe}_2\text{O}_3$ ) expressed as  $\text{Fe}_2\text{O}_3$  is 0.4-1.9 wt.% and,

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the glass composition with a thickness from 1 to 6 mm has a solar energy transmittance of not greater than 60% and ultraviolet transmittance of not greater than 30% defined by ISO.

4. A glass composition as claimed in any one of claims 1 thorough 3, wherein the glass composition comprises 0.4-1 wt.% total ion oxide (T- $\text{Fe}_2\text{O}_3$ ) expressed as  $\text{Fe}_2\text{O}_3$  and 0.01-0.40 wt.%  $\text{TiO}_2$  and has a visible light transmittance of not smaller than 70% measured by the illuminant "A" with a thickness from 1 to 6mm.

5. A glass composition as claimed in any one of claims 1 thorough 4, wherein the glass composition comprises

0.4-0.65 wt.% total ion oxide (T- $\text{Fe}_2\text{O}_3$ ) expressed as  $\text{Fe}_2\text{O}_3$  wherein a  $\text{FeO}$  ration expressed as  $\text{Fe}_2\text{O}_3$  against the total ion oxide (T- $\text{Fe}_2\text{O}_3$ ) is 20-60 wt.%;

not smaller than 0.01wt.% and smaller than 0.20wt.%  $\text{TiO}_2$ ; and 0.1-2.0 wt.%  $\text{CeO}_2$ , and

wherein the glass composition with a thickness from 3.5 to 5.0 mm has the visible light transmittance of not smaller than 70 %, the solar energy transmittance of not greater than 55% and the ultraviolet transmittance of not greater than 15% defined by ISO when measured by using the illuminant "A".

6. A glass composition as claimed in any one of claims 1 thorough 4, wherein the glass composition comprises:

greater than 0.65wt.% and not greater than 0.90wt.% total ion oxide

(T- $\text{Fe}_2\text{O}_3$ ) expressed as  $\text{Fe}_2\text{O}_3$ ;

0.01-0.40wt.%  $\text{TiO}_2$ ; and

greater than 1.4wt.% and not greater than 2.0wt.%  $\text{CeO}_2$ ,

a  $\text{FeO}$  ration expressed as  $\text{Fe}_2\text{O}_3$  against the total ion oxide (T- $\text{Fe}_2\text{O}_3$ ) is 20-60 wt.%, and

the glass composition with a thickness from 1.8 to 4.0 mm has the visible light transmittance of not smaller than 70 %, the solar energy transmittance of not greater than 55% and the ultraviolet transmittance of not greater than 15% defined by ISO when measured by using the illuminant "A".

7. A glass composition as claimed in any one of claims 1 thorough 6, wherein the glass composition comprises:

smaller than 0.005 wt.%  $\text{CoO}$ ;

not greater than 0.01 wt.%  $\text{NiO}$ ; and

not greater than 0.001 wt.%  $\text{Se}$ .

8.. A glass composition as claimed in any one of claims 1 thorough 3, wherein the glass composition comprises:

0.9-1.9 wt.% T- $\text{Fe}_2\text{O}_3$ ;

0.005-0.05 wt.%  $\text{CoO}$ ;

0-0.2 wt.%  $\text{NiO}$ ; and

0-0.005 wt.%  $\text{Se}$ .

9. A glass composition as claimed in claim 8, wherein the glass composition with a thickness from 1.8 to 5.0mm has the visible light

transmittance of 10-65%, the solar energy transmittance of not greater than 50% and the ultraviolet transmittance of not greater than 15% defined by ISO when measured by using the illuminant "A".

10. A glass composition as claimed in any one of claims 1 thorough 9, wherein the product of the mean linear expansion coefficient in a range of 50-350°C and Young's modulus is 0.71-0.90 MPa/°C.

11. A glass composition as claimed in any one of claims 1 thorough 10, wherein the mean linear expansion coefficient in a range of 50-350°C is  $80 \times 10^{-7} - 110 \times 10^{-7} / \text{°C}$ .

12. A glass composition as claimed in any one of claims 1 thorough 11, wherein the density measured at an ambient temperature is greater than 2.47g/cm<sup>3</sup> and not greater than 2.65 g/cm<sup>3</sup>.

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